5.0 TABLES

TABLE 1. MONITORING WELL CONSTRUCTION INFORMATION

All monitoring wells screened with machine-cut 0.01 inch slot size well screen.

Well No.	Total Depth (ft.)	Diameter (in.)	Screen Interval Depth (ft.)	Depth to Top of Sandpack (ft.)	Ground Surface Elevation (meters)	(feet)
MW-1	140	2	103-133	99.6	77.075	252.87
MW-2	60	2	29-59	19.1	70.230	230.41
MW-3	85	2	49-84	48.2	70.976	232.86
MW-4	100	2	64-99	63.5	72.439	237.66
MW-5	64	2	49-64	47.7	57.290	187.95
MW-6	235	2	196.5-230	187	76.29	250.3
MW-7	190	2	169.3-183.8	164	92.53	303.6
MW-8	400	2	371-400	332	121.6	398.9

TABLE 2. GROUND-WATER LEVELS

Well No.	First Water (Ft MSL)	Condition of Soil	Static Water Level (Ft MSL)	Change in Elevation After First Encounter (Ft)
MW-1	(153.7)	Dry	NA	NA
MW-2	208.8	Saturated	197.1	- 11.7
MW-3	172.8	Saturated	181.3	+ 8.5
MW-4	172.6	Moist	168.3	?
MW-5	(132.0)	Dry	132.4	NA
MW-6	72.0	Moist	46.1	?
MW-7	132.6	Saturated	169.6	+ 37.0
MW-8	15.0	Moist	154.	+ 139.0

TABLE 3. PERMEABILITY TEST RESULTS

Field Tests

Well	K (cm/sec)
MW-1	2.4×10^{-6}
MW-2	1.3×10^{-4}
MW-3	2.7×10^{-6}
MW-4	1.4×10^{-4}
MW-7	6.2×10^{-5}
MW-8	1.0×10^{-6}
C-8	9×10^{-9}
C-9	2×10^{-9}

Lab Tests

Cell #1 - 1	(Remolded)	2.6×10^{-7}
Cell #1 - 2	(UD - Cell Bottom)	1.5×10^{-8}
Cell #1 - 3	(UD - Cell Bottom	1.2×10^{-7}

TABLE 4 - MONITORING WELL WATER QUALITY RESULTS - JANUARY 1984 SAMPLES

Well No.	Specific Conductance umhos/m	pH	Na mg/l	Ca mg/l	Mg mg/l	K mg/l	HCO_3 mg/l	CO_3 mg/l	SO_4 mg/l	Cl mg/l
MW-2	5,800	6.7	1,030	452	235	14	NR	NR	1,540	1,840
MW-3	9,700	6.6	1,510	798	740	61	NR	NR	2,350	4,030
MW-4	8,300	6.4	1,050	971	530	62	NR	NR	1,560	3,620
MW-6	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
MW-7	3,900	8.95	640	67	170	40	NR	NR	970	892
MW-8	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
TYP*	8,750	7.6	1370	300	292	**	562	NR	1,508	2,050

NR - Not Reported

Above data analyzed by RECRA Research, Inc., Amherst, New York

*Typical, or representative values for the Juana Diaz as reported by the U.S.G.S. (McClymonds)

**Included with Na

LABORATORY PROCEDURES USED IN STABLE ISOTOPE RATIO ANALYSES (SIRA) AT GEOCHRON LABORATORIES

6 December 1978

Krueger Enterprises Inc.
Geochron Laboratories Division
24 Blackstone Street
Cambridge, Mass. 02139

(617) 876-3691

FIELD PROCEDURES

Test Borings

Drilling

Borings were drilled using a CME 55 trailer mounted drill rig. A rotary method of drilling was used to advance 3.25 inch I.D. hollow-stem augers. At borings locations where fill or waste fill materials did not exist the augers were advanced to a depth of approximately 9 feet. The augers were then removed, 6-inch I.D. galvanized steel casing placed to a depth of 9 feet and the borehole advanced to ground water using a 5-5/8-inch diameter tricone bit with compressed air as the drilling fluid. Once ground water was encountered, compressed air was no longer capable of lifting cuttings to ground surface. Potable water then replaced compressed air as the drilling fluid and the borehole was advanced to termination depth.

Soil samples were collected at approximately 5 or 10 foot intervals at the direction of the field supervisor. When sampling depth was reached, a split-spoon sampler was lowered down the borehole. The sampler was then driven into subsurface materials using repeated blows by a 140-pound hammer falling 30 inches. After the sample was obtained, it was removed from the sampler, classified and placed in a capped glass jar for storage. Samples collected below the depth where ground water was encountered were stored in specially cleaned glass jars. The boring was then advanced to the next sample depth.

At boring locations MW-1 and MW-5 the presence of fill and waste-fill required special drilling techniques to limit the potential of contaminating materials underlying the fill materials. At borehole MW-1, 3.25 inch hollow-stem augers were advanced until non-fill materials were encountered. A split spoon sample was then collected and the borehole advanced an additional 3 feet, where another split spoon sample was collected to verify residual materials and not earthen fill had been encountered.

The augers were then removed and the borehole reamed to a diameter of approximately ten inches using a ten-inch drag bit. Six-inch I.D. galvanized steel pipe with threaded couples was then placed to borehole bottom and driven approximately 10 inches into residual material using repeated blows by a 300-pound hammer. Grout was then placed in the annular space between the borehole wall and steel casing to ground surface and allowed to harden. The borehole was then advanced as previously described to termination depth.

At borehole MW-5, 3.25-inch I.D. hollow-stem augers were advanced through fill and waste fill materials. Samples were collected continuously using a split spoon sampler. When non-fill materials were encountered, the augers were pulled and 4-inch I.D. galvanized steel casing with threaded couples were placed in the borehole. The steel casing was then driven one foot into alluvial material and the annular space grouted to ground surface. The borehole was then advanced as previously described using a 3-inch diameter spade bit. Split-spoon samples were collected continuously to termination depth.

To limit the amount of aerosol oils, discharging from the air compressor, entering the borehole while drilling with air, an oil filter was placed in-line between the drill rig and air compressor. The oil filter used was a Van Air Systems, Inc. Model Number CL900 oil coalescer with Part Number CE-15 filter elements. The rated efficiency of this coalescer is 99.9 percent of oils removed.

Cleaning Methods

Prior to commencement of drilling activities a cleaning station was established near the entrance to the property and adjacent to the sole source of potable water at the project site. The cleaning station consisted of an electrically driven, kerosene fired portable steam cleaning rig and sawhorses for placement of equipment.

Before drilling at each of the borehole locations the drill rig was moved to the cleaning station. Augers, drill rods, bits, pipe wrenches and supporting tools and equipment were removed from the drill rig and placed on sawhorses. The rig and equipment were then rinsed off with potable water to remove any large build-up of cuttings followed by a thorough steam cleaning. Equipment was reloaded onto the drill rig and the rig mobilized to the next boring location. An exception to this procedure was necessary following completion of drilling activities at borings

MW-3, MW-4 and MW-1 due to the breakdown of the steam cleaning rig. Prior to drilling MW-2 and completion of drilling at MW-5 (48 to 64 feet) the drill rig and equipment were mobilized to a nearby fire station. At the fire station tools and equipment were placed on sawhorses and the rig and equipment thoroughly cleaned using potable water under very high pressure flowing through a fire hose connected to a fire hydrant.

Permeability Testing

Field permeability tests were performed in four of the five wells installed at the test boring locations. Monitoring well MW-5 was dry following construction. These permeability tests or "slug" tests were performed by raising or lowering the water level in the well with a weighted float (slug in) or bailer (slug out) and subsequently measuring the gradual water level decline or rise with an electric tape. In the case of "slug in", once the water level reached static conditions the float was removed from the well (slug out) and the recovering water level was measured.

Water level information was plotted on semilog graph paper on the linear axis against time in seconds on the log axis (Lohman, 1979). A family of matching curves were overlain on the data plot so that the plotted data points best fit one of the type curves. A value of time (t) in seconds on the data plot was picked where the data coordinate was found to overlie the value of $Tt/rc^2 = 1.0$ on the type curve. Once the value of t (seconds) was obtained it was used in the equation:

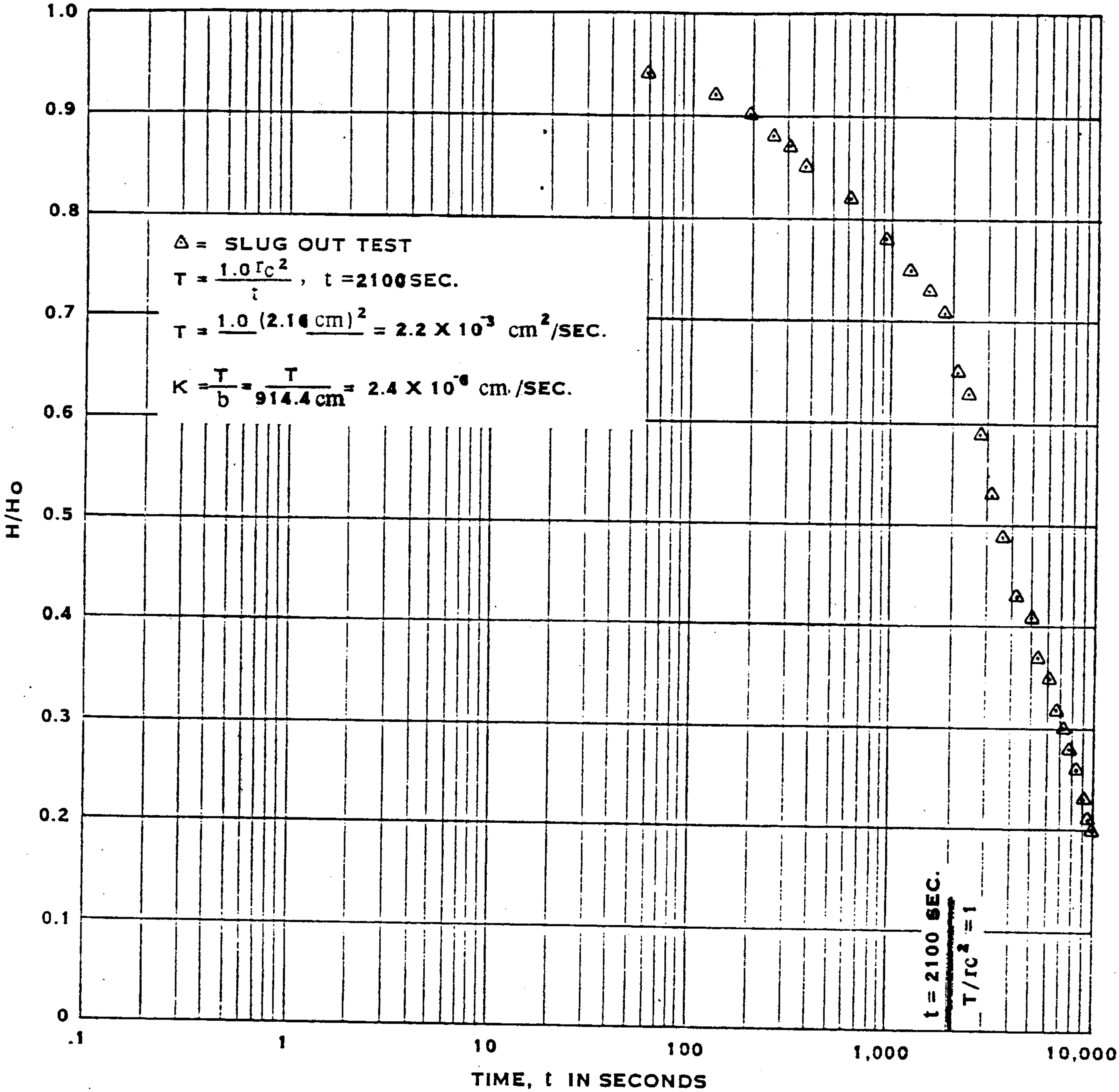
$T = 1.0rc^2/t$ where,

T = Transmissivity (cm^2/sec)

rc = radius of the well casing (cm)

t = time (seconds)

Permeability values were obtained for each test by dividing transmissivity by the screen length (cm) which yielded values which ranged from 2.4×10^{-6} cm/sec to 1.2×10^{-4} cm/sec. Semilog data plots for each of these tests are shown on Figures A-1 through A-4.



LAW ENGINEERING TESTING COMPANY

MARIETTA, GEORGIA

CECOS INTERNATIONAL, INC.

BUFFALO, NEW YORK

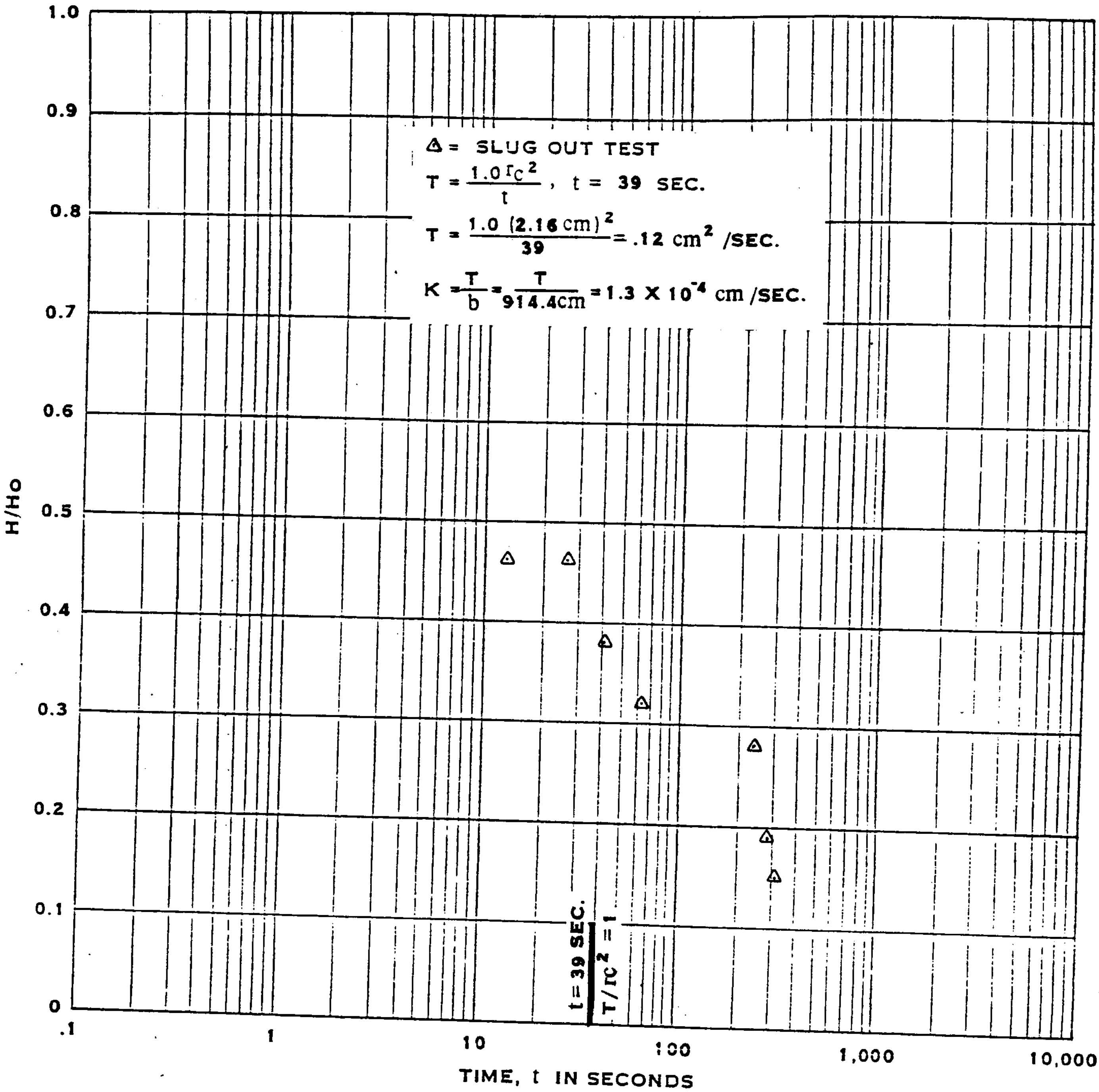
	BY	DATE
DRAWN	RLA.	9/28/83
CHECKED	R.K.S	10/21/83
APPROVED	J.D.G.	10/27/83

PONCE WASTE FACILITY

PERMEABILITY TEST RESULTS
MW-1

JOB NO. GS3223

FIGURE A-1



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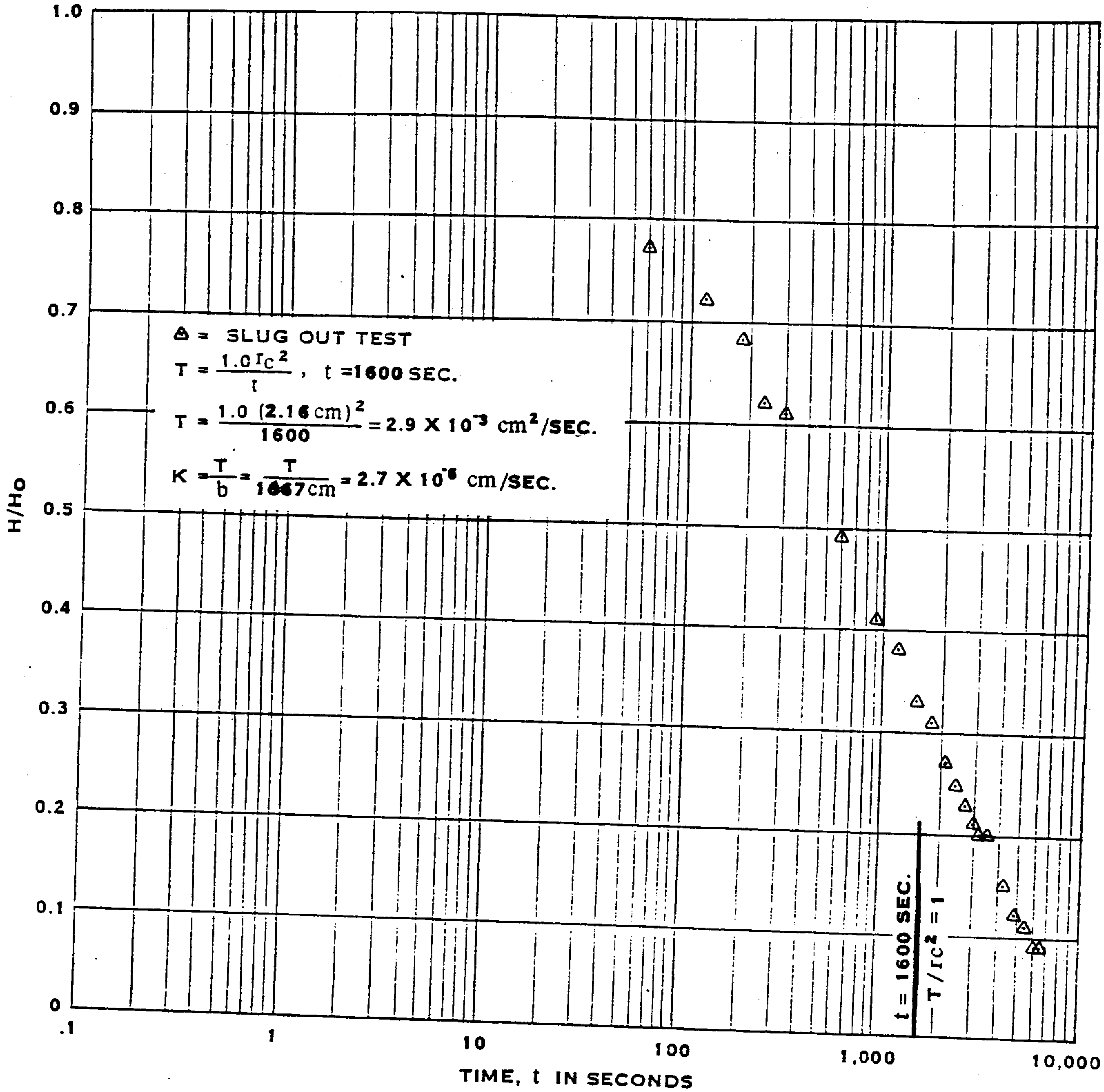
PONCE WASTE FACILITY
PERMEABILITY TEST RESULTS
MW-2

JOB NO. GS3223

FIGURE A-2



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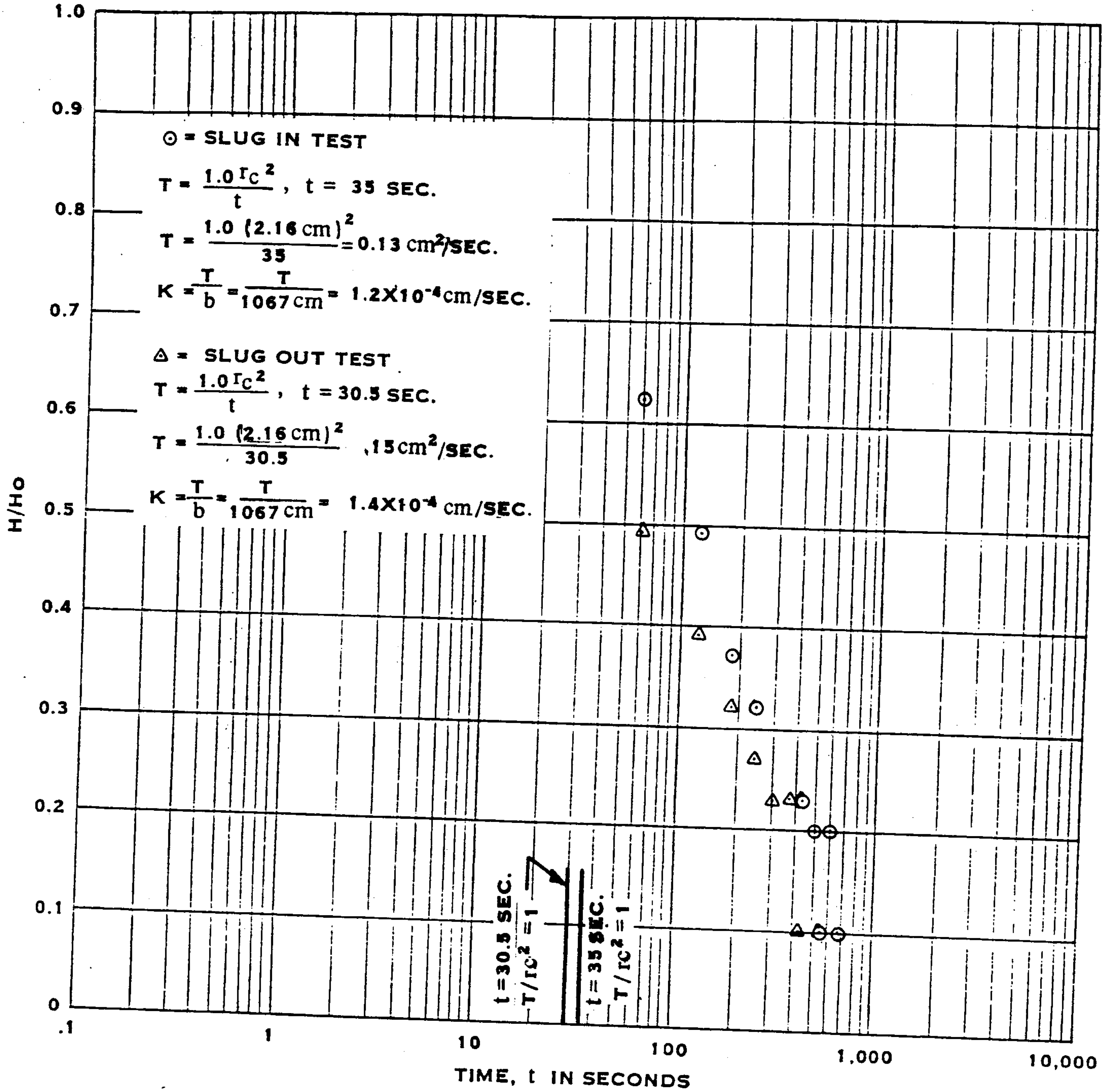
PONCE WASTE FACILITY

PERMEABILITY TEST RESULTS MW-3

JOB NO. GS3223

FIGURE A-3



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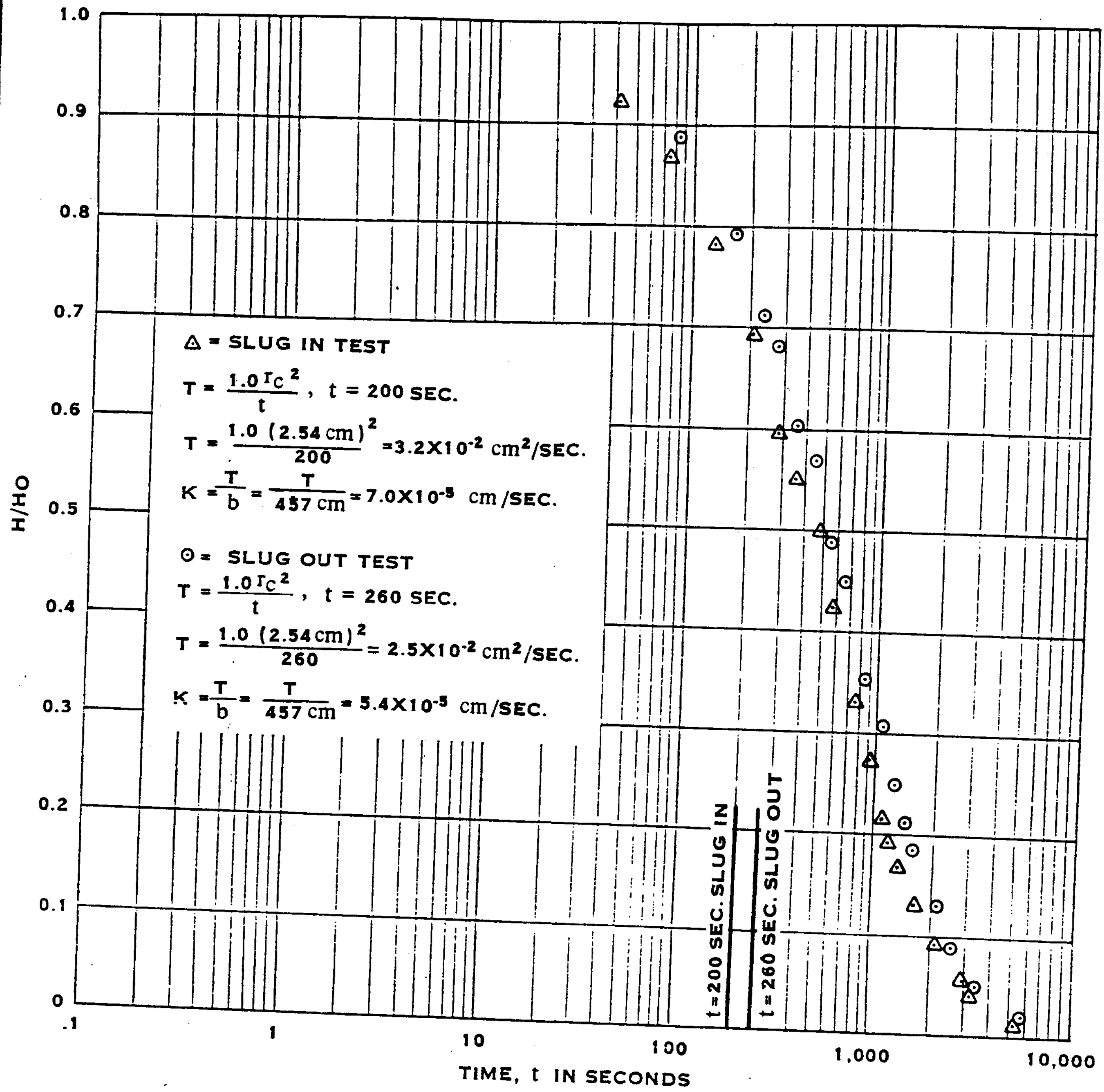
PONCE WASTE FACILITY

PERMEABILITY TEST RESULTS
MW-4

JOB NO. GS3223

FIGURE A-4



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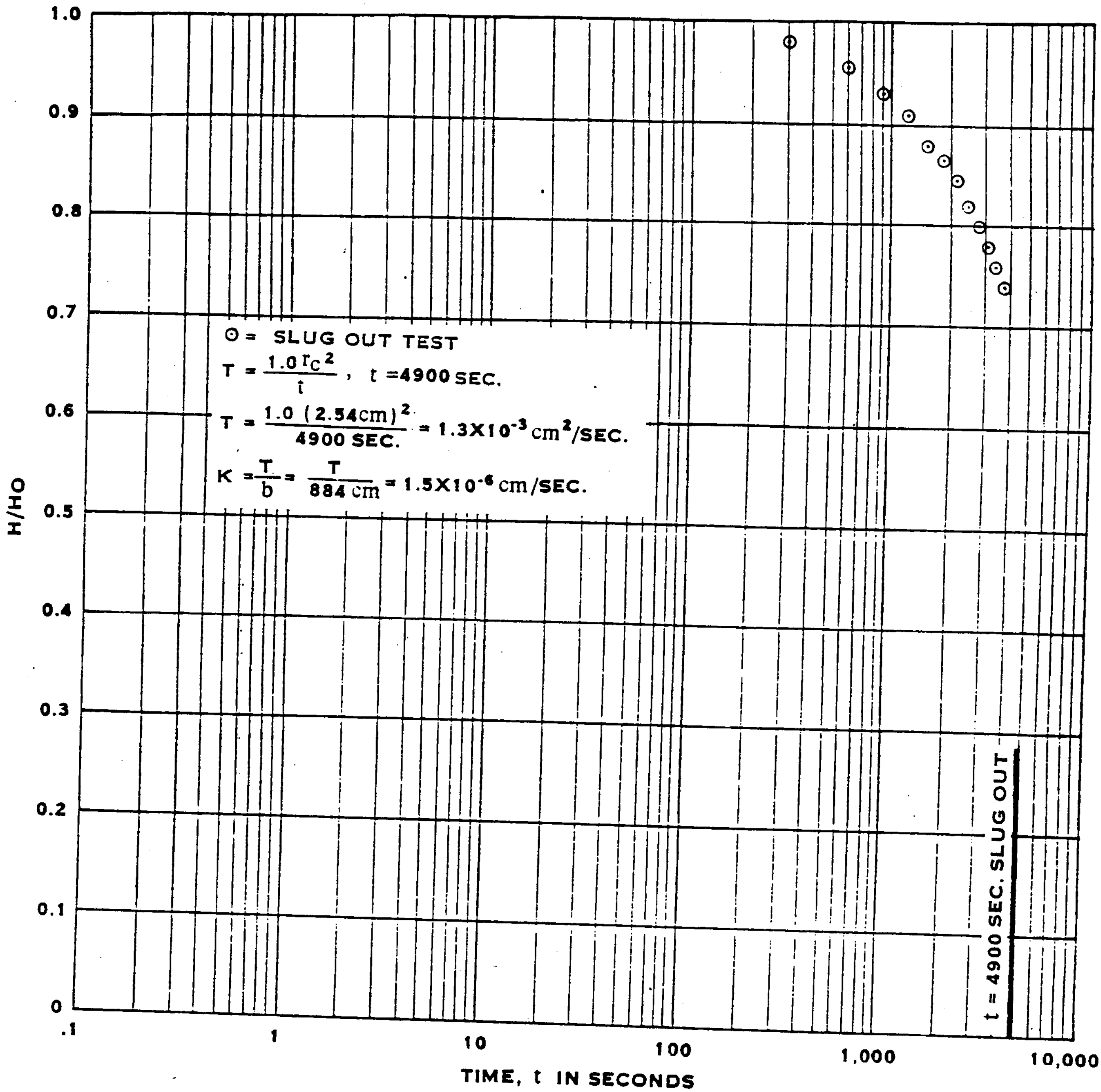
PONCE WASTE FACILITY

PERMEABILITY TEST RESULTS
MW-7

JOB NO. GS3223

FIGURE A-5



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PONCE WASTE FACILITY

PERMEABILITY TEST RESULTS
MW-8

JOB NO. GS3223

FIGURE A-6